

## **HEALTH VENTILATING INSOLE**

### **FIELD OF THE INVENTION**

The present invention relates to insoles, and particularly to a ventilating insole, wherein air in and out of the insole can interchange  
5 so as to prevent some foot diseases and the treading force of the foot is buffered and has a preferred vibration absorption effect.

### **BACKGROUND OF THE INVENTION**

The prior art ventilation structure comprises an air chamber having function like pumps, check valves, and air conduits for  
10 controlling airflow unidirectionally. However the prior art structure has a too large volume to be installed within a shoe. The prior art has a bad stability and cannot be cleaned in water.

In U. S. Patent No. 4,215,492, "Removable inner sole for footwear" disclosed at Aug. 5, 1980, wherein a structure is disclosed. In that structure, only  
15 the heel portion of the shoe has an air chamber. Since the air chamber is smaller, only a small amount of air is contained in the air chamber. No spring is installed in the air chamber so that as the heel portion of the shoe is compressed, it is difficult to restore. Moreover no ventilation layer is formed so that air around the toes easily flows to the air chamber. As a result, only little fresh air can flow into  
20 the air chamber and heat dissipation effect is not preferred.

### **SUMMARY OF THE INVENTION**

Accordingly, the primary object of the present invention is to

provide a ventilating insole, wherein the insole is simple without using any air conduit and check valves will induce the thickness to decrease so that the user will feel comfortable.

Another object of the present invention is to provide a ventilating  
5 insole, wherein spiral springs are used in the insole. The internal of the insole is formed as an air chamber so as to contain more air therein. A large amount of air can flow in the air chamber and outer environment. Thereby, the present invention can be used to various shoes, such as leather shoes, sport shoes, etc.

10 Another object of the present invention is to provide a ventilating insole, wherein the insole can be taken out for cleanness or update. A plurality of spiral springs are used instead of using a single larger spiral spring so as to retain the shape of the insole. Air in and out of the insole can interchange so as to prevent some foot diseases and  
15 the treading force of the foot is buffered and has a preferred vibration absorption effect.

To achieve above object, the present invention provides a ventilating insole which comprises an upper insole; a lower insole, a stripe positioned between the upper insole and lower insole, a  
20 ventilation layer upon the upper insole, and a plurality of spiral springs attached between the upper insole and lower insole. The upper insole has a plurality of air inlets at the rear end and a plurality of air outlets at a front end. The ventilation layer is attached to the upper insole. The ventilation layer has a plurality of air inlet holes

communicable to the air inlets of the upper insole but no holes communicable to the air outlets. By the air inlets and air inlet holes, when the insole is treaded, the air in the air chamber will flows to the air outlets of the upper insole and the ventilation layer; then air flows  
5 to the toes so that heat is dissipated.

The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

10 Fig. 1 is an exploded perspective view of the present invention.

Fig. 1-A shows the second embodiment of the present invention.

Fig. 2 is an assembled perspective view of the present invention.

Fig. 3 is a plane cross sectional view of the present invention showing the treading condition of the present invention.

15 Fig. 4 is a plane schematic view showing the state of the insole as the foot lifts from the ground.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring to Figs. 1 . Figs. 1-A and Figs.2, the structure of the  
20 present invention is illustrated. The insole 1 of the present

invention is formed by an upper insole 11 and a lower insole 12 (which can be made by plastics or rubber or leather ), a plastic strip or a rubber stripe 13 positioned between the upper insole 11 and lower insole 12, a ventilation layer 14 ( 14A ) upon ( or below ) the  
5 upper insole 11, and a plurality of spiral springs 15 attached between the upper insole 11 and lower insole 12. The plastic strip or a rubber strip 13 has a closed shape and is formed as an air chamber S with the upper insole 11 and lower insole 12. The plurality of spiral springs 15 are disposed within the air chamber S for restoring the air  
10 chamber S as the upper insole 11 is pressed.

The upper insole 11 has a plurality of air outlets 112 at position corresponding to the tiptoes and has a plurality of air inlets 111 at position corresponding to the heel. The ventilation layer 14 is attached to the upper insole 11. The ventilation layer 14 is in  
15 contact with the sole of the foot. The ventilation layer 14 has a plurality of air inlet holes 141 communicable to the air inlets 111 of the upper insole 11 (but no holes communicable to the air outlets 112). By the air inlets 111 and air inlet holes 141, when the insole is treaded, the air in the air chamber S will flow to the air outlets 112 of  
20 the upper insole 11 and the ventilation layer 14 (the layer has no holes at the front part). Then air flows to the toes.

A top of the spiral spring 15 is formed with a tapered shape with a larger bottom area. The top circle of the spiral spring 15 is parallel to the bottom circle of the spiral spring 15 so that the spiral spring 15

can be fixed to the upper insole 11 and lower insole 12 conveniently.

The operation of the present invention will be described here. In working, the heel firstly treads the rear side of the insole. Thereby, the rear side of the insole is pressed so that air flows to the front side of the insole and thus flows out of the air outlets 112 to the ventilation layer 14 to disperse in the toes. When the heel and toes leave from the ground, by the restoring force of spiral spring. The upper insole 11 and lower insole 12 are restored and air flows into the air chamber S through the air inlet holes 141 of the ventilation layer 14 and the air inlets 111 of the insole 11. Since the ventilation layer 14 has no air outlet at the front part thereof, air flowing out of the air outlets 112 will not easily return to the air chamber S. When the foot lifts, the heel leaves from the ground firstly, air flows into the air inlet hole 141 and the air inlets 111, but the toes still press the insole. Thus, air flows unidirectionally. Thereby, the air recycles in the air chamber S so that fresh air always fills in the air chamber S.

By the continuously treading and lifting actions of the foot, the wet air in the shoe will interchange with the outer fresh air so as to have preferred heat dissipation effect.

Advantages of the present invention will be described here. The material of the insole of the present invention is simple without using any air conduit and check valves. The spiral springs 15 are compressed as planes. Thereby, the insole of the present invention is thin and is comfortable. The internal of the insole is formed as an

air chamber so as to contain more air therein. A large amount of air can flow in the air chamber and outer environment. Thereby, the present invention can be used to various shoes, such as leather shoes, sport shoes, etc. The insole can be taken out for cleanness or update.

5 A plurality of spiral springs are used instead of using a single larger spiral spring so as to retain the shape of the insole. Air in and out of the insole can interchange so as to prevent some foot diseases and the treading force of the foot is buffered and has a preferred vibration absorption effect.

10 The present invention is thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the  
15 following claims.